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IPAWS Public Alert and Warning

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IPAWS Overview

- Background
- System Architecture
- CMAS/WEA

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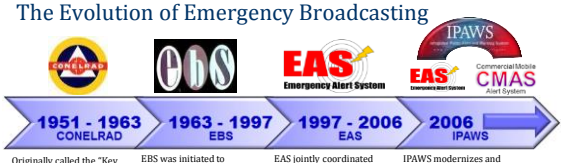
The Evolution of Emergency Broadcasting



Originally called the "Key Station System," the **CON**trol of **EL**ectromagnetic **RAD**iation (CONELRAD) was established in August 1951.

Participating stations tuned to 640 & 1240 kHz AM and initiated a special sequence and procedure designed to warn citizens.

EBS was initiated to address the nation through audible alerts. It did not allow for targeted messaging.

System upgraded in 1976 to provide for better and more accurate handling of alert receptions.

Originally designed to provide the President with an expeditious method of communicating with the American Public, it was expanded for use during peacetime at state and local levels.

EAS jointly coordinated by the FCC, FEMA and NWS.

Designed for President to speak to American people within 10 minutes.

EAS messages composed of 4 parts:

- Digitally encoded header
- Attention Signal
- Audio Announcement
- Digitally encoded end-of-message marker

IPAWS modernizes and integrates the nation's alert and warning infrastructure.

Integrates new and existing public alert and warning systems and technologies

Provides authorities a broader range of message options and multiple communications pathways

Increases capability to alert and warn communities of all hazards impacting public safety.

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IPAWS Federal Guidance

Executive Order 13407 states:

"It is the policy of the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people…"

"establish or adopt, as appropriate, common alerting and warning protocols, standards, terminology, and operating procedures for the public alert and warning system to enable interoperability and the secure delivery of coordinated messages to the American people through as many communication pathways as practicable…"

"administer the Emergency Alert System (EAS) as a critical component…"

"ensure that under all conditions the President of the United States can alert and warn the American people."

1995 Presidential EAS Statement of Requirements states:

"The national level EAS must be: Fully integrated from the national to local level, yet capable of independent local (Priority Two) and state (Priority Three) operations"

The IPAWS PMO was formed to implement Executive Order 13407

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Federal Regulation & Statutory Guidance

CFR 47 Part 11 — EMERGENCY ALERT SYSTEM

rules and regulations providing for an Emergency Alert System (EAS)

CFR 47 PART 10 — COMMERCIAL MOBILE ALERT SYSTEM

establish the requirements for participation in the Commercial Mobile Alert System

WARN Act —

funds APTS/PBS to distribute alerts from IPAWS to CMAS Participants, funds DHS to research more effective alerting

Stafford Act —

"provide technical assistance to State and local government to ensure that timely and effective disaster warning is provided"

"make available to Federal State and Local agencies the facilities of the civil defense communications systems"

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IPAWS Vision

"Timely Alert And Warning To American Citizens In The Preservation of Life And Property"

- Facilitate single emergency alert message delivery to all available public dissemination channels
- Easier to use by public safety/alerting authorities

- Improves and Enhances emergency alerting capability in two critical ways:
  - Reliability that citizens receive alert via at least one path
  - likelihood that citizens react to emergency alerts

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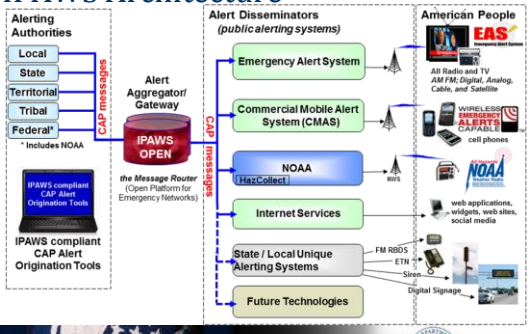
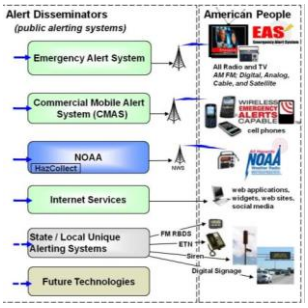
IPAWS Architecture



Alert Dissemination

- EAS
  - TV, Radio, Cable, Satellite
  - via EAS Atom Feed
- CMAS/WEA
  - Opt-in Carriers
  - via Federal Alert Gateway
- NWS
  - NOAA Weather Radio
  - via NWS HazCollect System
- Interoperating Systems
  - via Public Alert Feed



Alert Dissemination – CMAS/WEA

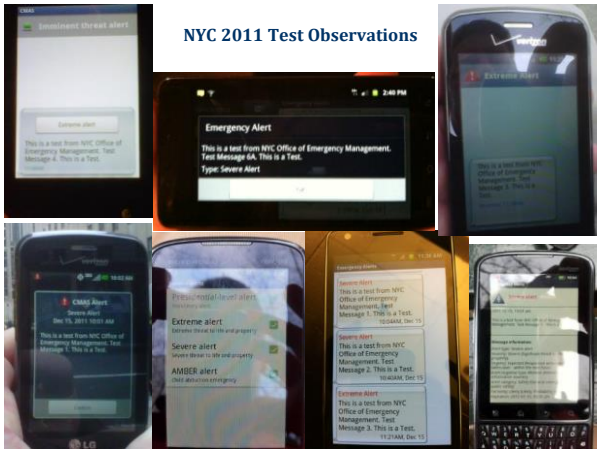
- Cell Broadcast vs. SMS text
  - No sign-up, free to use
  - Not subject to network congestion
- Geo-targeted to county/polygon level
- Three messages
  - Presidential Message
  - Imminent Threat
  - AMBER Alert
- Public opt-out
  - Except Presidential message
- Carrier opt-in*
  - 76 opted in (incl. "big 4")
  - 459 opted out

*http://transition.fcc.gov/pshs/services/cmas.html

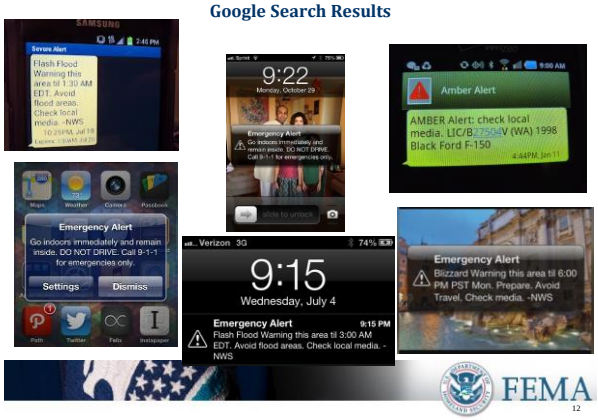
Alert Dissemination – CMAS/WEA

- 90 character text
  - Intended to "get their attention"
  - Then "refer to news outlets for more info"
  - No links, no phone numbers
- Special ringtone/vibration
- Which handsets?
  - At least 97 handsets available
  - Some iPhones
  - Some "feature phones"
  - Carriers educate at point of sale
- Where is it available?
  - 55 carriers online today
  - Big 4 are compatible nationwide

NYC 2011 Test Observations



Google Search Results



IPAWS Public Alerting Requirements

- CAP Alerting Tool
- MOA/ROB
- Public Alerting Application
- IPAWS Online Training

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IPAWS Public Alerting Requirements

1. Obtain an IPAWS-compatible alerting tool
2. Complete a Memorandum of Agreement
   - Fill out the MOA Application (link below)
   - FEMA will create an MOA for you to sign
   - With a signed MOA, FEMA will set up your COG and create your PKI certificate (to be installed in your alerting tool)
3. Complete the "Public Alerting Application"
   - Coordinate with the state and obtain signature
4. Complete IPAWS web-based training
   - With a signed "Public Alerting Application" and training certificate, FEMA will enable your alerting permissions and you're good to go

www.fema.gov/alerting-authorities

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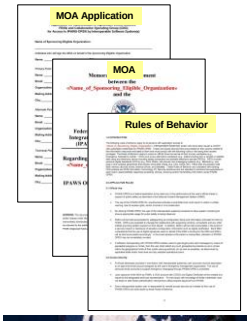
Required Documentation



- Memorandum of Agreement
  - MOA Application identifies county organization name, POCs, alerting tools used
  - MOA establishes the relationship between the county and FEMA, connection, communications, security
  - Includes the Rules of Behavior defining official use, password rules, accountability

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Required Documentation

- Public Alerting Application
  - Defines what areas you can alert, what event codes
- Training Certificate
  - High level training on IPAWS alerting concepts
  - Strongly recommend specific training for your alerting tool, follow best practices, coordinate with state and neighboring counties

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Current IPAWS Statistics

- Current Users
- CMAS/WEA Carriers Connected
- CMAS/WEA Capable Devices

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Alert Origination Update (as of Feb 6)

106

- Alerting Authorities online
- 2 national (NWS, NCMEC), 1 territory (PR), 1 other (DC)
- 25 states: AK, AR, AZ, CO, DE, FL, GA, HI, IA, ID, IN, KY, MA, MD, ME, MN, NJ, OK, PA, RI, TN, VA, WA, WI, WV

126

- Alerting Authorities in process
- 12 states: CA, IL, MI, MO, MS, NC, NE, NH, NM, NY, OH, VT

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Alert Dissemination Update (as of Feb 6)

55

- 55 Carriers online, 12 in process
- ATT has ~103M subscribers & 8 CMAS handsets
- Sprint has ~55M subscribers & 12 CMAS handsets
- T-Mobile has ~34M subscribers & 16 CMAS handsets
- VZW has ~108M subscribers & 38 CMAS handsets

76

- 76 Carriers opted in
  - 61 in full
  - 15 in part
- 459 Carriers Opted Out

CMAS/WEA Capable Devices (as of Feb 6)

CTIA Website	Cricket	Sprint	T-Mobile	US Cellular	Verizon
http://www.ctia.org/wea	1. Blackberry Curve 9350	1. Sanyo Inuendo	1. BlackBerry Curve 9315	1. BlackBerry Curve 9350	1. Apple® iPhone 4S
	http://goo.gl/EbiPO	2. Sanyo Vero	2. HTC One S	2. BlackBerry Torch 9850	2. Apple® iPhone 5
ATT		3. Sanyo Milano	3. Nexus 4	3. LG Freedom	3. BlackBerry Bold™ 9930
1. Samsung Galaxy S® (SGH-I777)	**Cellcom**	4. HTC EVO 3D	4. Huawei Summit	4. Kyocera DuraPro	4. BlackBerry Curve™ 9310
2. Samsung Captivate Glide (SGH-I927)	1. Motorola Milestone X2	5. Samsung Galaxy S® 4G Touch	5. LG Optimus L9	5. Motorola Electrify 2	5. BlackBerry Curve 9330
3. Motorola Atrix 2 (mb865)	2. LG Converse	6. LG Marquee	6. Nokia Lumia 710	6. Motorola Electrify M	6. BlackBerry Torch™ 9850
4. Samsung Galaxy Appeal (SGH-I827)	3. LG Optimus Select	7. Kyocera DuraMax	7. Nokia Lumia 810	7. Samsung Chrono 2	7. Casio GZ One Commando®
5. AT&T Fusion 2 (Huawei U8665)	4. Motorola Milestone 3	8. Kyocera Duracore	8. Samsung Galaxy S Blaze 4G	8. Samsung Freeform 4	8. Casio GZ One Ravine®
6. Alcatel 510A	5. Samsung Chrono	9. Kyocera Brio	9. Samsung Galaxy S III	9. Samsung Galaxy Axiom	9. DROID Incredible by HTC
7. BlackBerry 9360, 9810, 9860, 9900	6. Samsung Freeform 4	10. Samsung Transfer	10. Samsung Galaxy Note II	10. Samsung Galaxy Note II	10. DROID Incredible 4G LTE by HTC
8. Alcatel 871A	7. HTC One V	11. HTC EVO Design 4G	11. Samsung Galaxy S Relay 4G	11. Samsung Galaxy S III	11. HTC Rhyme™
http://goo.gl/QDDX	8. iPhone 5	12. Samsung Transform Ultra	12. Samsung i159	http://goo.gl/25Gxe	12. Rezound™ by HTC
	9. Motorola Razr Maxx	http://goo.gl/sD1Lv	13. T-Mobile myTouch		13. Thunderbolt™ by HTC
	10. HTC Desire 4G LTE		14. T-Mobile myTouch Q		14. HTC Trophy™
	11. Motorola Defy		15. T-Mobile Prism		15. LG Cosmos™ 2
	http://goo.gl/BQvsN		16. Windows Phone 8X by HTC		16. LG Enlighten™
			http://goo.gl/QlAZV		17. Lucid™ by LG
					18. LG Revere™
					19. Revolution by LG
					20. Motorola Barrage™
					21. Motorola Citrus™
					22. Droid 2 by Motorola
					23. Droid 2 Global by Motorola
					24. Droid 4 4G by Motorola
					25. Droid Bionic by Motorola
					26. Droid Pro by Motorola
					27. Droid Razr by Motorola
					28. Droid Razr Maxx by Motorola
					29. Droid X by Motorola
					30. Droid X2 by Motorola
					31. Pantech Hotshot™
					32. Pantech Jest™ 2
					33. Pantech Marauder™
					34. Samsung Brightside™
					35. Samsung Convoy™ 2
					36. Droid Charge by Samsung
					37. Samsung Fascinate™
					38. Samsung Galaxy S® III
					http://goo.gl/Qdpjd

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IPAWS Environments

- Production
- Development
- Demo

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Three IPAWS Environments

- PROD
  - Live public alerts!
  - EMAs only
- TDL
  - Developmental test site
  - Software developers only
- JITC
  - Train, Drill, Exercise, Demo
  - EMAs and software developers

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Three IPAWS Environments

- How to use JITC to train, drill, exercise
  - MOA
    - Your PROD MOA will work here
  - Certificate and URL
    - Your software vendor/developer can help with this
  - COG Permissions
    - Mirror PROD permissions or prototype new ones
  - What will you test?
    - Plans? Procedures? Software? Templates? Train the new guy/gal? Message exchange with neighboring counties?

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Recent Events

- Examples of where CMAS/WEA was used
- Examples of when it could be used

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RECENT EVENTS

Tornado in Elmira, New York
July 26, 2012

"We put out the early warning, people got notice and knew what to do when a tornado approaches. The damage was bad, but we're happy that no one got hurt, so that's a success story we feel pretty good about. The more ways we can get the information out, the better the chance people have to be warned."
– Local NWS Spokesman

"Your warning of a tornado imminent in my area of New York, sent 7/26/12 via text message to my cell, was invaluable! From the bottom of my heart- THANK YOU National Weather Service!"
– Citizen Post on Facebook

Star Gazette, August 1, 2012
FCC Blog, August 30 2012

RECENT EVENTS

"Technology That Keeps Us Safe: Wireless Emergency Alerts"

"Although Florida was spared a hit from Isaac, we did get a lot of rain. While I am pretty calm in the face of severe weather…keeping the weather channel on tends to make my four year old paranoid.

So instead of watching the weather, we hung out in the play room…from the other side of the house, I heard an unusual ringing. It sounded like an emergency alert ring, but I was sure the TV was off… I headed off to investigate. The TV was off. Could that sound have come from my phone?

It sure did. My Samsung Galaxy S III sent me a text alert letting me know there was severe weather in my area. But this was no ordinary text message, the notification came with a special forced tone alert that overrode my volume setting. How smart is that?!

When I turned on my phone I found a message from the National Weather Service alerting me to a tornado warning in the area. I turned on the TV, and sure enough a tornado warning had just been issued. **Now that's the way technology should work!**"

http://www.thesuburbanmom.com/2012/08/31/technology-that-keeps-us-safe-wireless-emergency-alerts/

RECENT EVENTS

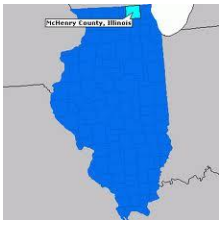
McHenry County Informing Community about IPAWS

In an interview with a local reporter, McHenry County officials described IPAWS and WEA.

"This gives us another avenue to alert the public to a pending disaster, or contact them after a disaster has occurred."

"To me, the big thing is the cell phones. Reverse 911 calls go to house addresses, but they don't go to cell phones unless the subscriber registers."
-- Director David Christensen

Northwest Herald, August 8, 2012



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RECENT EVENTS

Tennessee Department of Health

The Tennessee Department of Health intends to use interoperable COG-to-COG messaging routed via IPAWS to track Emergency Patients during crises.

Information on patient demographics, location, and care can easily be shared in a confidential and secure manner between federal, state, and local partners across any IPAWS standards-compliant software platform.

TENNESSEE DEPARTMENT OF HEALTH

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RECENT EVENTS

Snowmageddon

"For D.C. area commuters stuck in snow, 'it just felt hopeless.'"

A disastrous commute that began early that day and lasted well past midnight.

Thousands of commuters were stranded for hours, and hundreds of cars were abandoned on the road; information to commuters before and during the commute was sparse.

The Washington Metro Council of Governments called for recommendations on:

- ✓ the information systems that gather travel information
- ✓ development of better ways to relay that information to the public
- ✓ launching a public education campaign to stress personal preparedness and the importance of heeding emergency directives

The Washington Post: 01/28/11

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RECENT EVENTS

Hurricane Rita "Miles of Traffic as Texans Heed Order to Leave"

3.7 million people evacuated from the Houston area and Texas coast and created a 100 mile traffic jam that put evacuees in danger as Hurricane Rita approached. This was due in part to:

- fear stemming from the memory of Katrina, and
- vague and non-targeted evacuation instructions

"Probably the biggest failure of the whole process was communication – people not having their expectations met…if people know they're going to be in a 20-hour drive, they can prepare for a 20-hour drive. If they think it's going to be four or five, they… prepare for it with gasoline and water or food."

At the pinnacle of the evacuation and traffic jam, even after logistical solutions were identified, public safety officials had difficulty communicating information to the public. The New York Times: 09/23/06

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RECENT EVENTS

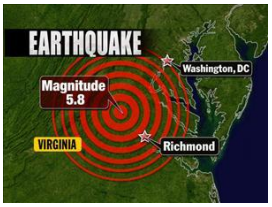
"East Coast quake causes major cell service disruptions"

Cell service along the East Coast was spotty following a Virginia-based earthquake that was felt as far away as New England.

There were no reports of downed cell towers or wires, but mobile providers said that millions of people tried to make cell phone calls at the same time, resulting in overwhelmed cellular relay stations.

Cell service disruptions occur during periods of heavy call volumes because of a bottle-necking factor.

Like a highway that gets congested during rush hour, cellular infrastructure is not designed to handle the amount of calling traffic that occurs during emergency situations. http://money.cnn.com: 08/23/11



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RECENT EVENTS

"Colorado Wildfire Deaths Blamed on 911 Malfunction"

Three people in Colorado are dead after an emergency 911 system malfunctioned and failed to alert them to evacuate their homes ahead of a raging wildfire.

The three victims had all contacted the Jefferson County 911 system to ask about the fire, but were not told by dispatchers to evacuate, and did not receive the automated notification in time to save their lives.

Colorado authorities said they are investigating problems with an emergency notification system because some residents who had signed up to get wildfire warnings never got one. About 12 percent of people failed to get a warning about a wildfire in the mountains southwest of Denver.

(ABC News: 04/04/2012)